LISTING OF THE CLAIMS

The following listing of the claims replaces all prior claim versions and listings in the application:

1. (Currently Amended) A trocar system comprising:

an elongated probe including a first central axis and a tip end configured to be capable of making ~~for forming~~ a puncture hole in living tissue;

a cylindrical sheath including tip and base ends, a second central axis and a through hole extending along the second central axis between the tip and base ends of the sheath, the sheath being adapted so that the tip end of the probe projects from the tip end of the sheath, when the probe is inserted in the through hole of the sheath and the first central axis is aligned with the second central axis;

a cylindrical dilator including tip and base ends, a third central axis, a through hole extending along the third central axis between the tip and base ends of the dilator, and a puncture hole dilating portion configured to dilate the puncture hole, formed in the living tissue by the tip end of the probe, at the tip end of the dilator, the dilator being adapted so that the tip end of the sheath projects from the tip end of the dilator, when the sheath is inserted in the through hole of the dilator and the second central axis is aligned with the third central axis;

a cylindrical trocar including tip and base ends, a fourth central axis and a through hole extending along the fourth central axis between the tip and base ends of the trocar, the trocar being adapted so that the tip end of the dilator projects from the tip end of the trocar, when the dilator is inserted in the through hole of the trocar and the third central axis is aligned with the fourth central axis,

with the probe, sheath and dilator being configured to be removable from the through hole of the trocar and the trocar being retained in a patient's body wall, after guiding the trocar between the tip and base ends into the puncture hole formed by the probe;

the trocar system comprising an engaging mechanism configured to detachably engage the dilator with the trocar when the dilator is inserted in the trocar; and

~~a user hold portion formed by the base ends of the trocar and the dilator being connected and integrated with each other when the trocar is engaged with the dilator by the engaging mechanism~~ wherein:

the trocar comprises a trocar hold portion configured to be held by an operator;

the dilator comprising a dilator insertion portion and a dilator hold portion disposed at the base end of the dilator and configured to be held by the operator;

the dilator hold portion comprising:

a small diameter portion; and a larger diameter portion, the larger diameter portion positioned closer to the dilator insertion portion and having a smooth curved outer surface configured for comfortable gripping and holding of the dilator portion with a palm of one hand of the operator;

the trocar hold portion and the dilator hold portion being interactively configured in a united body, when the trocar is detachably engaged with the dilator, such that the operator is able to grasp and hold both the trocar hold portion and the dilator hold portion with the palm of one hand for one handed puncturing and dilating operation of the trocar system.

2. (Currently Amended) The trocar system according to claim 1, wherein the [[user]] dilator hold portion includes: an enlarged diameter portion of the larger diameter portion which is disposed on the base end of the dilator, having an outer diameter enlarged relative to the tip end of the dilator; and the trocar hold portion comprising a bulging portion disposed on the base end of the trocar and formed of at least a part of the base end of the trocar extending in a direction along an axial direction of the trocar toward a side opposite the tip end of the trocar.

3. (Previously Presented) The trocar system according to claim 2, wherein the enlarged diameter portion includes a concave portion in which at least a portion of the base end of the trocar, on a side opposite the tip end of the trocar, is configured to be fitted.

4. (Currently Amended) The trocar system according to claim 3, wherein the ~~enlarged diameter portion comprises a~~ small diameter portion ~~adopted~~ is configured to be held by the operator's ~~finger~~ fingers, and [[a]] the large diameter portion having a diameter progressively enlarged in a direction toward the tip end of the dilator to a diameter larger than the small diameter portion, the large diameter portion being configured to be held by the palm of one hand of the operator.

5. (Currently Amended) The trocar system according to claim 4, wherein the bulging portion has a conical shape having a small diameter toward the tip end of the trocar and whose diameter is enlarged in a direction extending away from the tip end of the trocar.

6. (Previously Presented) The trocar system according to claim 5, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the puncturing tip end of the probe.

7. (Previously Presented) The trocar system according to claim 6, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

8. (Previously Presented) The trocar system according to claim 7, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

9. (Currently Amended) The trocar system according to claim 3, wherein the enlarged diameter portion includes a spherical portion configured to be held by the palm of an operator's hand and the spherical portion includes the concave portion.

10. (Currently Amended) The trocar system according to claim 9, wherein the bulging portion has a conical shape having a small diameter toward the tip end of the trocar and whose diameter is enlarged in a direction extending away from the tip end of the trocar.

11. (Currently Amended) The trocar system according to claim 10, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, which is configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe.

12. (Previously Presented) The trocar system according to claim 11, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

13. (Previously Presented) The trocar system according to claim 12, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

14. (Previously Presented) The trocar system according to claim 3, wherein the enlarged diameter portion includes a columnar portion to be held by an operator's hand and the columnar portion includes the concave portion.

15. (Currently Amended) The trocar system according to claim 14, wherein the bulging portion has a conical shape having a small diameter toward the tip end of the trocar and whose diameter is enlarged in a direction extending away from the tip end of the trocar.

16. (Previously Presented) The trocar system according to claim 15, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe.

17. (Previously Presented) The trocar system according to claim 16, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

18. (Previously Presented) The trocar system according to claim 17, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

19. (Currently Amended) The trocar system according to claim 3, wherein the bulging portion has a conical shape having a small diameter toward the tip end of the trocar and whose diameter is enlarged in a direction extending away from the tip end of the trocar.

20. (Previously Presented) The trocar system according to claim 19, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe

21. (Previously Presented) The trocar system according to claim 20, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

22. (Previously Presented) The trocar system according to claim 21, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

23. (Currently Amended) The trocar system according to claim 1, wherein the united body of trocar and dilator hold ~~portion~~ portions includes at least one slip stopping element which prevents the ~~hold portion~~ united body of hold portions from slipping from the operator's hand.

24. (Previously Presented) The trocar system according to claim 1, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe.

25. (Previously Presented) The trocar system according to claim 24, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

26. (Previously Presented) The trocar system according to claim 25, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

27. (Previously Presented) The trocar system according to claim 1, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

28. (Previously Presented) The trocar system according to claim 27, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

29. (Currently Amended) A trocar system comprising:

an elongated probe which includes a first central axis and a tip end configured to be capable of making ~~for forming~~ a puncture hole in a living tissue;

a cylindrical sheath including tip and base ends, a second central axis and a through hole extending along the second central axis between the tip and base ends of the sheath, the sheath being adapted so that the tip end of the probe projects from the tip end of the sheath, when the probe is inserted in the through hole of the sheath align and the first central axis is aligned with the second central axis; a cylindrical sheath insertion portion including tip and base ends, a third central axis, a through hole extending along the third central axis between the tip and base ends of the sheath insertion portion, and a puncture hole dilating portion to dilate the punctured hole, formed in the living tissue by the tip end of the probe, in the tip end of the sheath insertion portion, the sheath insertion portion being adapted so that the tip end of the sheath projects from the tip end of the sheath insertion portion, when the sheath is inserted in the through hole of the sheath insertion portion and the second central axis is aligned with the third central axis;

a cylindrical dilator insertion portion which includes tip and base ends, a fourth central axis, and a through hole extending along the fourth central axis between the tip and base ends, the dilator insertion portion being adapted so that the tip end of the sheath insertion portion projects from the tip end of the dilator insertion portion, when the sheath insertion portion is

inserted in the through hole of the dilator insertion portion and the third central axis is aligned with the fourth central axis,

with the probe, sheath and sheath insertion portion configured to be removable from the through hole of the dilator insertion portion to retain the dilator insertion portion in a patient's body wall, after guiding the dilator insertion portion between the tip and base ends into the punctured hole; a dilator hold portion disposed on the base end of the sheath insertion portion and configured to be held by the operator with the sheath insertion portion inserted in the dilator insertion portion and having an outer diameter enlarged relative to the tip end of the sheath insertion portion; and

a trocar hold portion disposed on the base end of the dilator insertion portion and configured to be held by the operator with the sheath insertion portion inserted in the dilator insertion portion, the trocar hold portion having a portion toward the tip end of the dilator insertion portion which bulges in a direction away from the axis of the dilator insertion portion, and a portion on at least a side opposite the tip end of the dilator insertion portion being held by the dilator hold portion when the sheath insertion portion is inserted in the dilator insertion portion;

the trocar hold portion being configured such that the operator is able to grasp and hold both the trocar hold portion and the dilator hold portion with the palm of one hand in one united hold portion body when the trocar hold portion is detachably engaged with the dilator hold portion, for one handed puncturing and dilating operation of the trocar system.

30. (Currently Amended) The trocar system according to claim 29, wherein the dilator hold portion includes an enlarged diameter portion whose diameter is enlarged relative to the tip end of the sheath insertion portion, and the trocar hold portion includes a bulging portion which extends in a direction extending along [[from]] the axial direction of the dilator insertion portion toward a side of the trocar hold portion opposite the tip end of the dilator insertion portion, at least a part of the trocar held portion [[is]] being covered with the dilator hold portion when the sheath insertion portion is inserted in the dilator insertion portion.

31. (Currently Amended) The trocar system according to claim 30, wherein the enlarged diameter portion includes a small diameter portion configured to be held by the

operator's ~~finger~~ fingers, and a large diameter portion whose diameter is progressively enlarged in a direction toward the tip end of the sheath insertion portion to a diameter larger than the small diameter portion, and the enlarged diameter portion being configured to be held by the palm of one hand of the operator.

32. (Currently Amended) The trocar system according to claim 31, wherein the bulging portion has a conical shape having a small diameter toward the tip end of the dilator insertion portion and whose diameter is enlarged in a direction extending away from the tip end of the dilator insertion portion.

33. (Previously Presented) The trocar system according to claim 32, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe.

34. (Previously Presented) The trocar system according to claim 33, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away at an acute cut angle with respect to the axial direction of the probe.

35. (Previously Presented) The trocar system according to claim 34, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

36. (Currently Amended) The trocar system according to claim 30, wherein the enlarged diameter portion includes a spherical portion to be held by an operator's palm of one hand and the spherical portion includes the concave portion.

37. (Currently Amended) The trocar system according to claim 36, wherein the bulging portion has a conical shape having a small diameter toward the tip end of the dilator insertion portion and whose diameter is enlarged in a direction extending away from the tip end of the dilator insertion portion.

38. (Previously Presented) The trocar system according to claim 37, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe.

39. (Previously Presented) The trocar system according to claim 38, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away at an acute cut angle with respect to the axial direction of the probe.

40. (Previously Presented) The trocar system according to claim 39, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

41. (Currently Amended) The trocar system according to claim 30, wherein the enlarged diameter portion includes a spherical portion to be held by an operator's palm of one hand and the spherical portion includes the concave portion.

42. (Currently Amended) The trocar system according to claim 41, wherein the bulging portion has a conical shape having a small diameter toward the tip end of the dilator insertion portion and whose diameter is enlarged in a direction extending away from the tip end of the dilator insertion portion.

43. (Previously Presented) The trocar system according to claim 42, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe.

44. (Previously Presented) The trocar system according to claim 43, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

45. (Previously Presented) The trocar system according to claim 44, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

46. (Currently Amended) The trocar system according to claim 30, wherein the enlarged diameter portion includes a spherical portion to be held by an operator's palm of one hand and the spherical portion includes the concave portion.

47. (Previously Presented) The trocar system according to claim 46, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe.

48. (Previously Presented) The trocar system according to claim 47, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

49. (Previously Presented) The trocar system according to claim 48, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

50. (Currently Amended) The trocar system according to claim 29, wherein the united hold portion body includes at least one slip stopping element which prevents the united hold portion body from slipping from the operator's hand.

51. (Previously Presented) The trocar system according to claim 29, wherein the probe includes an ultrasonic transducer provided on a base end of the probe, the ultrasonic transducer being configured to be capable of transmitting an ultrasonic vibration and to be capable of oscillating the ultrasonic vibration toward the tip end of the probe.

52. (Previously Presented) The trocar system according to claim 51, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

53. (Previously Presented) The trocar system according to claim 52, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.

54. (Previously Presented) The trocar system according to claim 29, wherein the puncturing tip end of the probe has a conical shape with a surface of the conical shape being cut away with a planar cut at an acute cut angle with respect to the axial direction of the probe.

55. (Previously Presented) The trocar system according to claim 54, wherein the cut angle is 60 degrees or less with respect to the axial direction of the probe and the cut extends over a vertical angle of the tip end of the probe.